1: Lorimer T-3 (1920-4; 1934-5) 1938 AVT Baruba AVT

233 The most livestock that the average household of 10 to 20 persons
241 hopes to possess is a tiny flock of 20 to 25 sheep, goats and cows. In
237 these circumstances manure is more precious than gold, and the small
592 children who conduct a cow to pasture carry a shoulder basket in which every ounce of the day's output is scrupulously collected and brought home.

233 When the snow retreats on the upper mountains a few patches of green are left here and there, and the more athletic beasts are taken up by young men who live in shelters with their charges, collect the manure, convert the milk into butter and bring these home with the animals when the snows claim their own again. These patches of high pasture, several thousand feet above the villages, are all too few and can only be reached by serious feats of mountaineering. Through field-glasses we could see the grazing animals clinging—by their eyebrows as it seemed—to their precipitous 'summer pastures', but it was impossible to ride up even on a yak, and at our age impossible to climb on foot for a nearer view.

As soon as the trees put out their leaves in spring, each 'donkey tree' (*i.e.*, non-fruit-bearing) is stripped of every scrap of spare foliage to feed the half-starved beasts. This luxury diet has to be very carefully administered lest the animals should perish of its unaccustomed succulence.

243 The major crops grown by the Hunza people for their own use are
[177] wheat, barley, several kinds of millet, sweet and bitter buckwheat, nowadays also the highly-valued potato (introduced by the British in 1892) and small quantities of various pulses. Barley must have been the original staple crop, for all the traditional festivals, the Seed-sowing of early spring, the First Reaping of early summer and the Harvest
• [242] Home, relate to barley alone. The peasant is wise about rotation of crops and the various types of wheat, millet, etc., which thrive best in given conditions. Wheaten bread is much preferred to any other, but barley remains the larger crop because spring-sown barley ripens three or four weeks before even the winter-sown wheat, and the vacant fields can be resown with millet; whereas after the wheat only buckwheat can hope to ripen before winter. Bitter buckwheat is frankly detested, but it is hardier than the sweet and can better withstand an attack of early frost, so a certain amount of it is always sown as an insurance.

So poor is the soil, so scanty the manure, that in the newer villages like Aliabad, the average return is only sevenfold and even the storeyed fields of Baltit, which have been tilled in the sweat of man and woman's brow for at least 600 years and probably for twice or thrice as long, yield

ILLNESS CALLS A HALT

Above and below us as we rode the barley harvest was being speedily gathered in; family groups were reaping, threshing, winnowing, while the more advanced were already hastily reploughing their land for various kinds of millet. Though the Hunza summer is short, the sun at these heights is hot, and with luck each hard-worked field will bear two crops a season. The barley field which is soonest clear will ripen a later crop of millet; the wheat field, ready a fortnight or three weeks later, will still be in time for one or other type of buckwheat. Barley must in olden days have been the standard crop, for all the sowing and harvest festivals centre round it. But the Hunzukuts[1] of to-day vastly prefers wheaten bread and sows as much wheat as he dares. Even the winter-sown wheat, however, ripens later than the spring barley, and since every ingenious device of agriculture only "just gives what life requires, but gives no more," he cannot afford to concentrate on wheat alone. Each year the peasant farmer makes his calculations afresh; experience has taught him much about the rotation of crops, the different varieties of grain that each field —according to soil, water, and aspect—can most profitably bear, and his gamble with nature is a highly intelligent one. In the opener fields of Aliábád we reckoned that the proportion of wheat to barley was roughly two to one, nearer Báltít one to two.

If later in the year you point to a field and ask "What crop is that?" the answer will not be "Such and such a millet, or such and such a buckwheat," but the name of the growing crop with the additional information "On top of wheat" or "On top of barley," which will give you the difference of some weeks in the date of sowing and probably also indicate some subtle difference in the quality of the soil if you have learnt enough basic agriculture to interpret the facts aright.

Our narrow mountain track skirted the face of a magnificent amphitheatre of storeyed cultivation, plunging every now and then into welcome belts of fruit trees, willows and poplars, crossing foaming mountain torrents in cracks of the hillside, none too easy to ford in July, though only rock-strewn gullies

[1] Hunzukuts is both singular and plural.

233 any wage in our sense of the term, but that he would certainly be getting one or two free meals a day, and thus sensibly reducing the rationing problems of his own home. Hunza sheep lamb twice a year, but the goats have kids once only, in the Spring. Khano's promotion to wage-earning status was a little sad for us, for we saw him much more rarely after that.

242 One fine morning early in March the apricot trees that line
245 the Dála just in front of our rest-house were suddenly invaded by the whole Dastagul family armed with long sticks, to the end of which a sharpened piece of curved iron had been attached. With infinite care they inspected every branch, and wherever they detected the nest of an insect they snipped down the twig on which it rested. These nests were small, cocoon-like things only about an inch long, with a nasty little grub inside. The nests clung very tight to their hospitable perch, and it was often necessary to cut quite a biggish spray in order to secure them; each was diligently collected and borne home to the fire. We were not qualified to identify the pest on which war was being waged, but it was reported to devour both leaves and fruit if not destroyed. All through the country every single apricot tree is scrupulously examined and cleared—there must be thousands. We certainly did not later see a single one that seemed to be suffering from insect attack.

563 About this time we made another addition to our re-
167 tainers—a dear old grey-bearded man with the jolliest bright
361 eyes and a merry, happy smile, but not a tooth in his head, was roped in to work at Wakhi. The Wakhis, as I have said, are immigrants into the north of Hunza from the Wakhan districts of Afghanistan. They have settled in various places above the level at which the Burusho themselves care to live. Hunza men will tell you that they cannot induce their womenfolk to live where the apricot will not ripen. I suspect, however, that the men are just as unwilling to forgo their trees and wheat and fruit, but Adam-like prefer to blame their mates. The higher villages of Hunza are therefore inhabited almost wholly by Wakhi-speakers. Being unaccustomed to wheat, apricots, or

expected to reply: "It is God's will. Accidents will happen. After all, they are beasts of the mountain and the wild." He is reckoned a churlish fellow who institutes enquiries and demands compensation, though no one denies his right to it. The liberty to indulge in an occasional free feed is, we understood, sparingly taken and not abused.

With luck a she-goat will yield enough milk while up on the summer pastures to make two *maltash*, i.e. two birch bark parcels of butter for storage. If the goat is a trustee goat the herd is expected to hand one *maltash* to her owner and to keep the balance as his fee. Sheep's milk is poor in fat content and yields little butter, so it is usually devoted to making *brús* and *rakhpín*, a kind of hard, dried curd which has great lasting qualities and the appearance of a cake of soap.

The day that the herds return from the mountain with their charges is a festive one for the villages. Large parties go out to meet the returning absentees. Before finally leaving the *tér*, driven down by cold and the advancing autumn snows, the herds bake some special little cakes to bring back with them, and crowds of dancing, shouting boys and girls fall on their elder brothers demanding their share. Trust the Hunzukuts to stage a festival on the slightest provocation.

Our Ernest of the white horse reappeared unexpectedly from the *tér* in the middle of the season and walked over from Hasanabad to call on us and bring an offering of *brús* for DL and of wild mountain flowers for me. He had given his animals into a friend's charge, and taken a couple of days off because he was a member of the Hasanabad polo team and was wanted to play in an inter-village match. These matches rouse as much interest as Arsenal *versus* Chelsea, and a good player who is also the possessor of a good pony can ill be spared. I duly took a photo of him and The Cat, he no longer in the rôle of the humble *sais* but of the gentleman polo player. Stout fellow!

These early June days were the time for apricot and mulberry grafting. The cultivated fruit shoots are grafted on to wild trees. We watched the process, about which the Hunzukuts have little to learn. Each graft was given a double lashing of bark from mulberry root. We returned later and found them all thriving.

7:Tobe C.T-3 (1959)1960 AV7 Burusho AV7
Hunza

251 them. Even apricots that were bruised, damaged or even starting to rot were put out to dry. No treatment of any kind was used . . . just simply nature at work.

245 [428] [423] An apricot tree is a most valuable asset in Hunza. It is a fact that an apricot tree is often willed to a daughter by parents and she can retain her rights to the tree and of course the crops that come from it for her lifetime.

In the Western world, the apricot is not considered a long-lived tree. In America, especially, it is considered not much longer lived than a peach or a plum and that means at the most, 25 or 30 years of life. When you take into consideration the truth that in Hunza apricot trees live to be well over 100 years, one wonders just where the difference comes in.

245 242 I really believe that I have the answer. In Hunza apricots are grown from seed. No matter where I looked or sought I could find no tree nursery in either Nagir or Hunza. (I did find a small government nursery in Gilgit.) Therefore I would assume that every Hunzan farmer grows his own trees from the planting of the apricot seeds. No doubt some Hunzan farmers are more adept at this task than others and they probably grow a few extra ones and maybe trade them for other things with their neighbors.

But, as explained, the trees here last many, many years and the orchard space or land to grow them on is very limited. Therefore, there would be little or no demand for nursery stock. I inquired wherever I went concerning grafting and I tried to establish whether or not they knew anything about the process and how much they knew, but I came up against a blank wall. I could gather no definite information. That they know how to graft and are acquainted with the process, I am sure but to what extent it is used, I could not establish.

Now the case in the Western world and specifically in America is entirely different. Most of the apricots in America are positively grafted or budded on either plum or peach rootstock. This tends to make the tree bear a crop much sooner than it would on its own roots. On a plum root the apricot tree will grow in damp soils that would not be tolerated by the apricot itself or by the apricot grown on a peach root. However, the fact that the apricot is budded on peach or plum definitely makes its life span about 30 years at the utmost.

To the best of my knowledge and belief, nowhere in America can you purchase apricot seedlings, nor are they listed by any of the wholesale nurseries or growers. This would clearly indicate that apricots are invariably grown on a foreign rootstock as mentioned above. Undoubtedly this has much to do with the longevity of the Hunzan apricot trees. In Europe apricot seedlings are available and used as the rootstock on which to graft and bud apricots, which is as it should be.

However, from my investigations, I did learn that more than 20 different kinds of apricots are known and grown in Hunza. This does prove that grafting or budding or both are known in Hunza. The fruit that I did see and eat was by no means superior to that grown in the rest of the world. In fact, if anything, it was of inferior size and quality.

This may come as a shock to many people who believe that everything the people of Hunza do is superior to that done anywhere else in the world. Unfortunately, I must relate things as I found them.

In America, for example, a farmer would not hesitate to remove a tree or even an orchard that was producing undersized or inferior quality fruit, because he's depending on his fruit for marketing purposes. Remember, too, in America size and yield are the two most im-

7:Tobe C.T-3 (1959)1960 AV7 Burusho AV7
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CHAPTER 38

Crop Rotation--Harvesting

Whenever I Talked to a farmer—and, of course, practically all people in Hunza are farmers—I asked what crops they grew and then asked how many years they had been growing wheat or potatoes or barley on a specific field. In every case the answer came back that some other crop different from the present one was raised there last year. I tracked this down carefully because I wanted to clearly establish whether or not they followed the rotating program in raising their food crops.

Even before setting foot in Hunza, I was certain that they could never have remained alive and in good health under such difficult conditions and with the limited available land, unless a rigid scheme of crop rotation was followed. Yet from what I actually saw on the scene, I reached the conclusion that this was easier said than done. It's all right to rotate crops where you have

242 lots of land and where, if necessary, you can allow some of it to lie fallow. But here they needed every bit of land they could get. It was actually a matter of life and death.

In a country where land is as scarce as it is in Hunza, there would be a very strong temptation against allowing land to lie fallow. I assure you that this technique is positively practiced. Then, too, there is a strong temptation to use a few pats of cow or yak dung for fuel during the cold winter nights. Yet, in most of Hunza, common sense and wisdom prevail and the excrement is used where it belongs—on the land.

I can see no hope that the land situation in Hunza will improve, but the very fact that it has continued to exist and flourish for over 1,000 years is ample proof that their way of life, their methods and means of agriculture, are right. It is only by practicing rigid, persevering methods of control and natural methods of agriculture that they have been able to survive.

With land so scarce one might be tempted to get away from crop rotation. But the people of Hunza are too wise to succumb to that type of thinking. They know that if crop rotation were not practiced rigorously, disease, sickness and death would soon follow. They know that no people anywhere in the world are "healthier than their soil."

History relates and offers proof of many civilizations who failed to follow the practices and principles of sound agriculture and to return to the land that which belonged to and came from the land. This practice invariably led to ruin and extermination. This selfsame horticultural technique is being practiced in many countries throughout the world today and the results will be the same—disastrous—as only time will prove.

No matter where I walked or went or rode in either

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Hunza or Nagir, not once did I see a bit of organic material of any kind wasted or destroyed. The people made regular foraging trips to different parts of the country and always brought back for their land any grass or other organic material that was found and could be brought home.

[482]

They would walk many miles in search of grass or green growth of any kind. Regularly I saw men, women and boys carrying huge packs on their backs. It was a mass of green packed into a cloth and carried to their farm to be fed to the animals or distributed over the small fields.

[231]

Up until the present time chemical fertilizers have not invaded Hunza. Whether there is any connection between the splendid health of the Hunzans and the fact that they have never used commercial fertilizers, I am unable to state. But it is worth considering!

Remember, there are no forests, peat bogs or other sources of organic material like we have in most parts of Europe and America. Every bit of organic material that the Hunzan farmer uses or procures is got at the expense of hard work or difficult travel. So it is easy to see why they can afford to waste not one iota of this life-sustaining substance.

If you have ever traveled to Switzerland, you would probably be struck or amazed by the neat piles of manure that are built in front of most farm residences and there a man's prestige and intrinsic value are estimated by the size of his manure pile. Don't laugh—I'm not joking! I'm dead serious and I swear this is absolutely true! Wise, oh, very wise, are the Swiss!

In Hunza, unfortunately, manure piles are seldom if ever encountered because the manure is placed on their fields as soon as it is ready. I looked into countless animal stables but never once did I see a manure pile . . .

242 either there or anywhere else. Obviously it is placed directly on the fields or at least at definite short intervals.

Here the Hunzan system again showed some notable difference from the method practiced in the West. Practically all farmers in the West allow their manure to accumulate in piles or actually stack it in that manner. It is usually left there from one season to another at least and often longer. I've heard them refer to the older manure piles as well cured ones. I've always bemoaned this fact—yes, back as much as 20 years ago—because with every rain and with the snows in the winter, potent, rich, nutrient-ladened juices flowed off into the streams from my land and other lands. No one can deny that a fair part of the value of the manure is leached away forever.

In Hunza it is spread regularly on the land, between crops in the spring and summer. I distinctly saw many farms on which the manure had been distributed being plowed in. This is never done, to my knowledge, in the West. Therefore the Hunzan farmer does not lose any of his valuable, natural manures by leaching.

242 514 Because there is such a scarcity of organic materials, it is obvious that excrement must be used to the fullest extent. I looked, I gazed, I searched, I peered but nowhere did I see a sign of any human excrement being accumulated, saved or being used on the Hunzan farms. This mystified me.

In practically all parts of India and in some parts of Pakistan and perhaps in other Eastern countries, it is customary for the citizenry to stoop at the curb, right out in the middle of the street or sometimes beside a bush or planting of shrubs, and right there and then evacuate water or feces. No, this is not an exaggeration or a fairy tale, but the simple, unadulterated truth that is seldom told.

7:Tobe C,T-3 (1959)1960 AV7 Burusho AV7
Hunza

That people avoid discussing this unpleasant topic is understandable; yet, by doing so, you and others who have no opportunity of visiting these areas are often given an incorrect picture. Whereas, in Pakistan and India, this unpleasant business took place practically everywhere, it was with a genuine feeling of relief and thankfulness that I found in Hunza it is positively never practiced—at least, I never saw even a sign of any such thing taking place—but evidently human excrement is used there. It is buried and eventually finds its way to the fields.

It took quite a search to track down the ways and means and methods of using this night-soil. I know that it is used extensively in the East and for that matter, it is also used in Mexico and perhaps in other parts of the Western world. There is no reason why it shouldn't be used if proper methods of curing or mellowing are followed. After all is said and done, our septic tanks are only putting a natural principle to work, but the shame of it is that in most cases it is entirely wasted.

The most common method of using night-soil in Hunza was to place it in a deeply (as deep as the rocky terrain of Hunza would allow) dug pit, which was carefully kept covered, and eventually, a year or two later, it was distributed over the fields.

Harvesting a crop of grain in Hunza is very much unlike our Western methods. They do not cut their grain but each wheat plant, or other grain, is pulled out individually, root and all, by hand. Then it is laid in neat bundles on the ground. When the harvesting or grain pulling process is complete, the roots are separated from the stalks by being cut or chopped off in bundles.